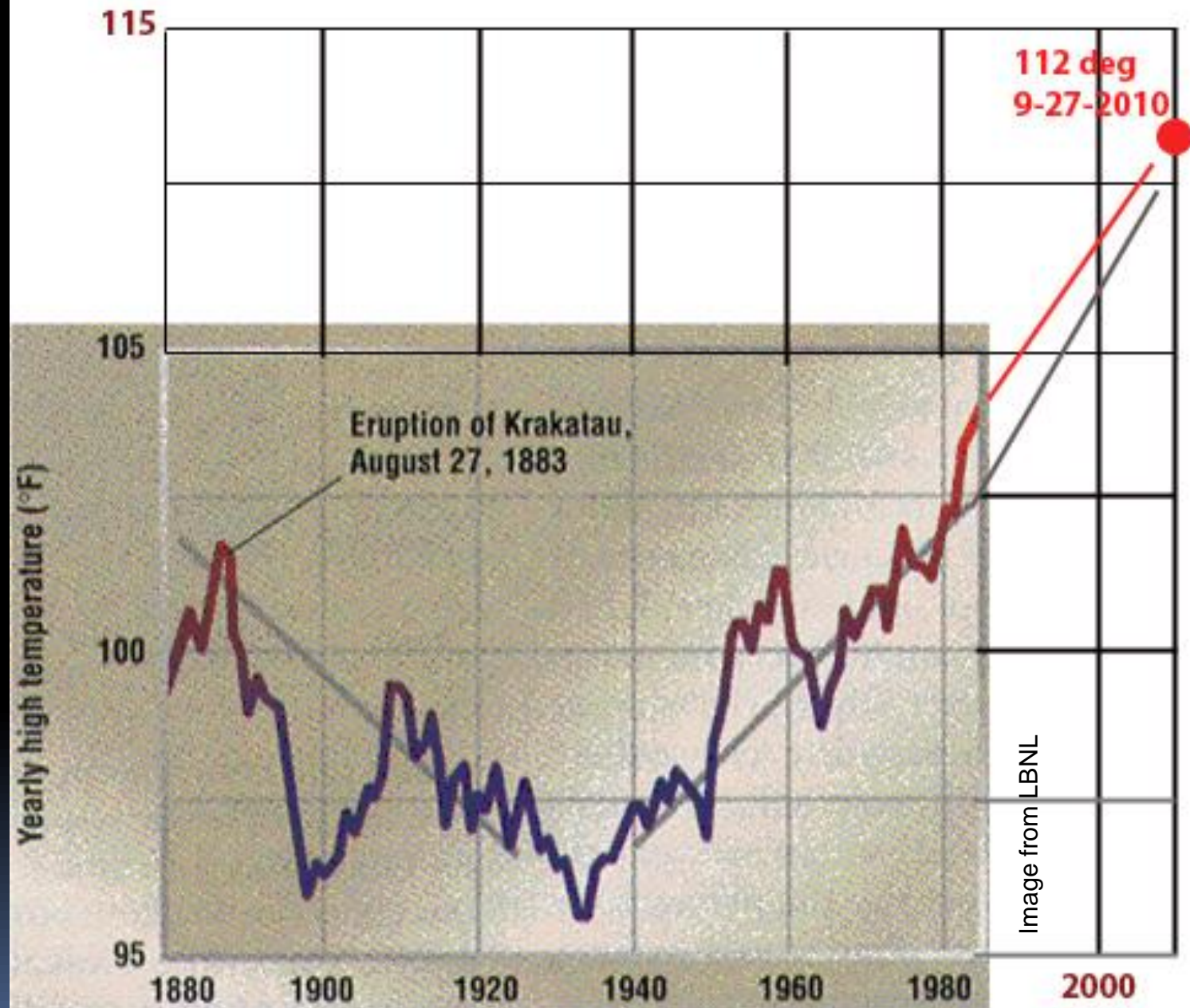


# URBAN HEAT ISLAND

Annual mean daytime air temperature can be 5.4 deg F warmer, highest recorded temperature can be 10 to 12 deg F warmer. On a clear calm night, the temperature difference can be 22 deg. F warmer.

Lawrence Berkley National Laboratory (LBNL) in a study for U.S. Department of Energy specifically cited **Burbank** as having yearly maximum temperatures that are rising significantly.



Yearly high temperature (hottest day of the year) recorded in Downtown Los Angeles

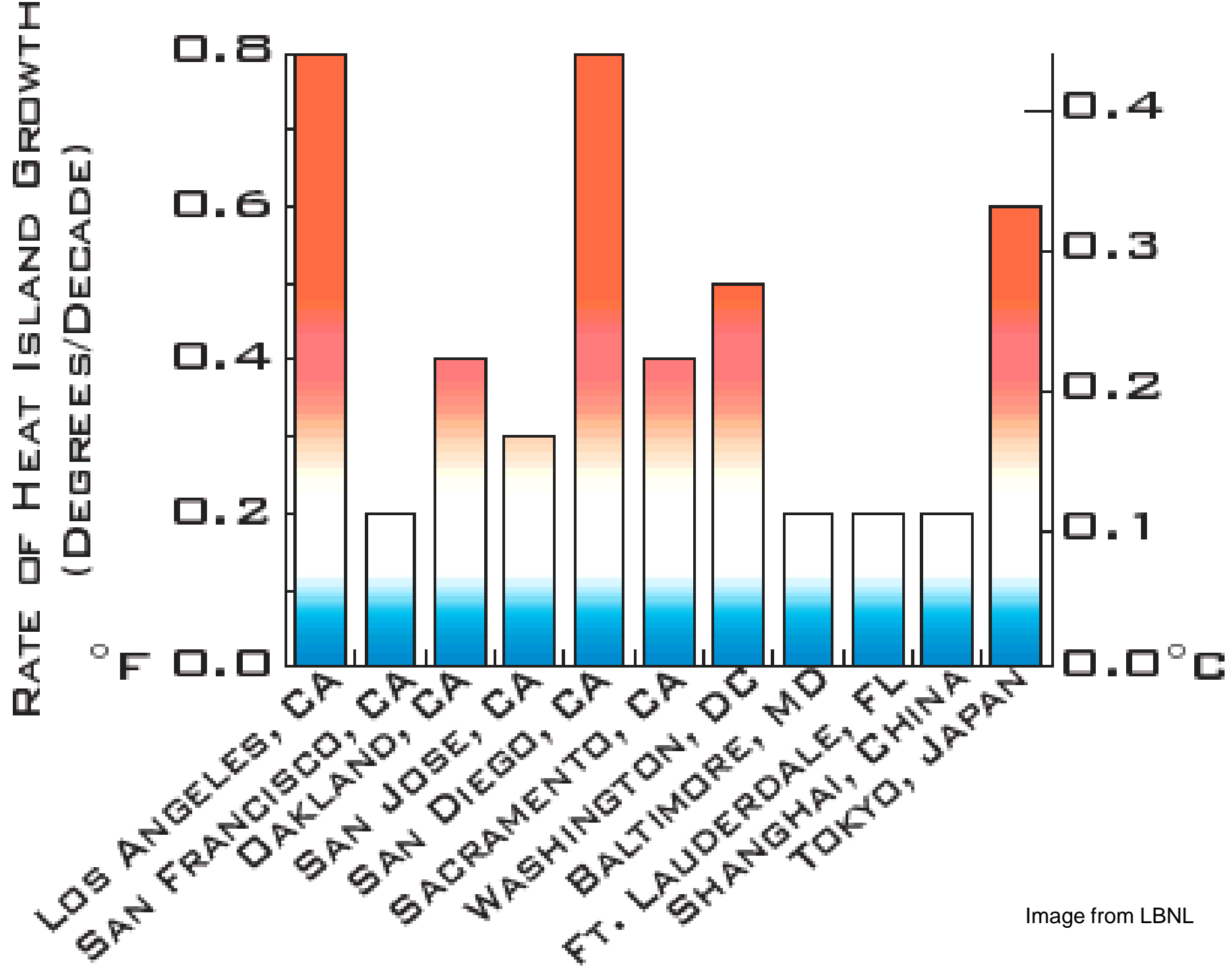
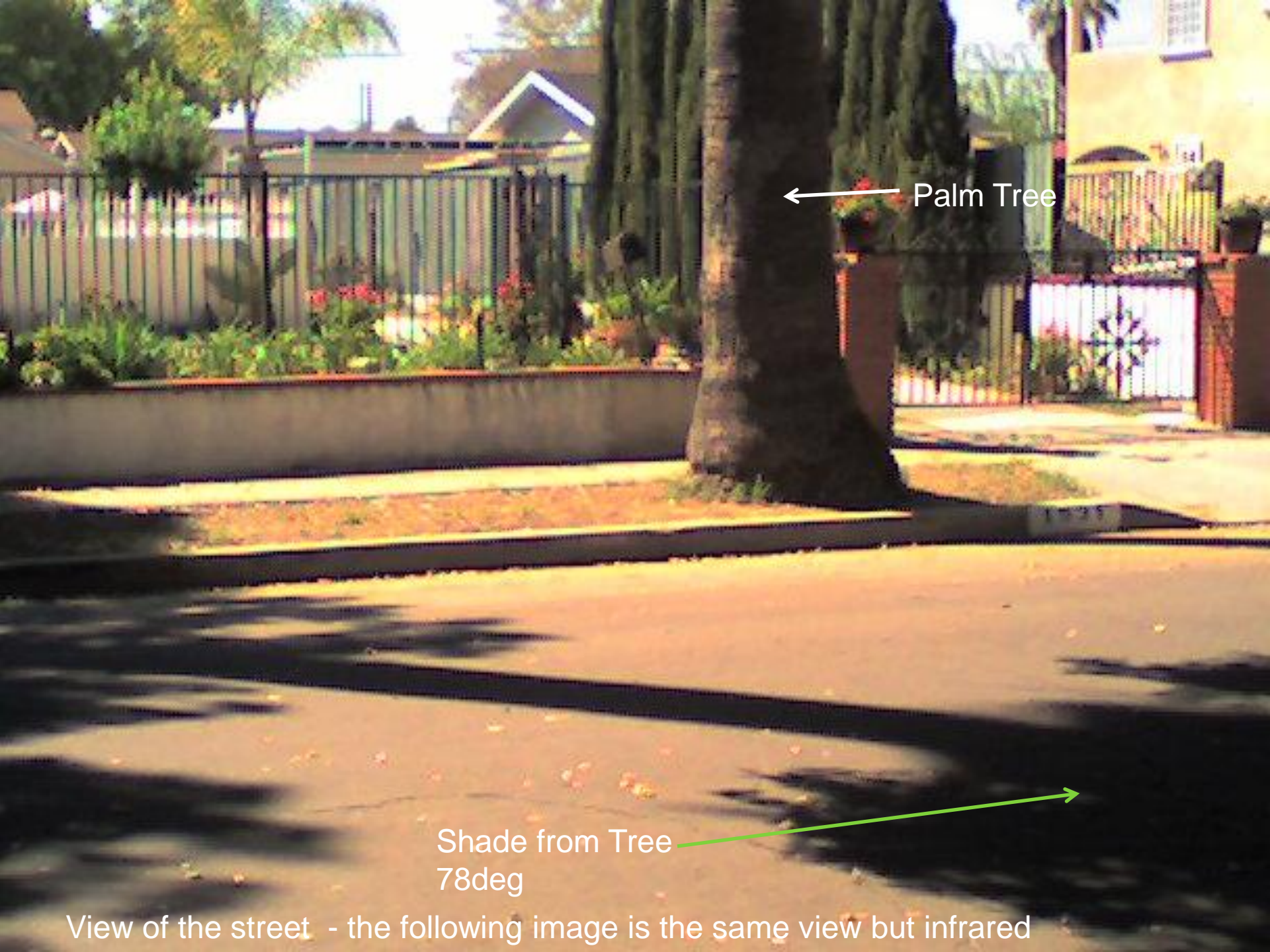


Image from LBNL

**INFRARED IMAGES:  
PAVEMENT AND ROOF TEMPERATURES  
APRIL 8, 2011  
OUTSIDE AIR TEMP APPROX.  
88 DEGREES F.**



← Palm Tree

Shade from Tree  
78deg

View of the street - the following image is the same view but infrared

Spot **110** °F

$\epsilon$  0.90  
Refl. T 68.1°  
Dist 3.5ft  
FOV 25°  
Rel. H 50%  
Atm. T 78.7°

128

← Palm Tree



← Asphalt Paving  
125deg.

77.5

Shade from Tree  
78deg

11-04-01  
15:02



A photograph of asphalt pavement. A large, dark shadow is cast across the right side of the frame, likely from a building or structure out of view. The asphalt surface is light-colored and shows some texture and small debris. The shadow is dark and irregular in shape.

Note that the asphalt is 30  
to 40 degrees hotter than  
the air temperature!

The asphalt will continue to  
be hot after the sun goes  
down.

Here in the  
shade, the  
asphalt is slightly  
cooler than the  
air temperature.

Spot **96.4** °F

$\epsilon$	0.90
Refl. T	68.1°
Dist	3.5ft
FOV	25°
Rel. H	50%
Atm. T	78.7°



115

83.0

11-04-01  
15:01

 **FLIR**

Black Asphalt Roof

This will make your electric meter spin!



Spot 160 °F

ε 0.90  
Refl. T 68.1°  
Dist 3.5ft  
FOV 25°  
Rel. H 50%  
Atm. T 78.7°

Black Asphalt Roof  
80 degrees hotter than  
Air Temperature!

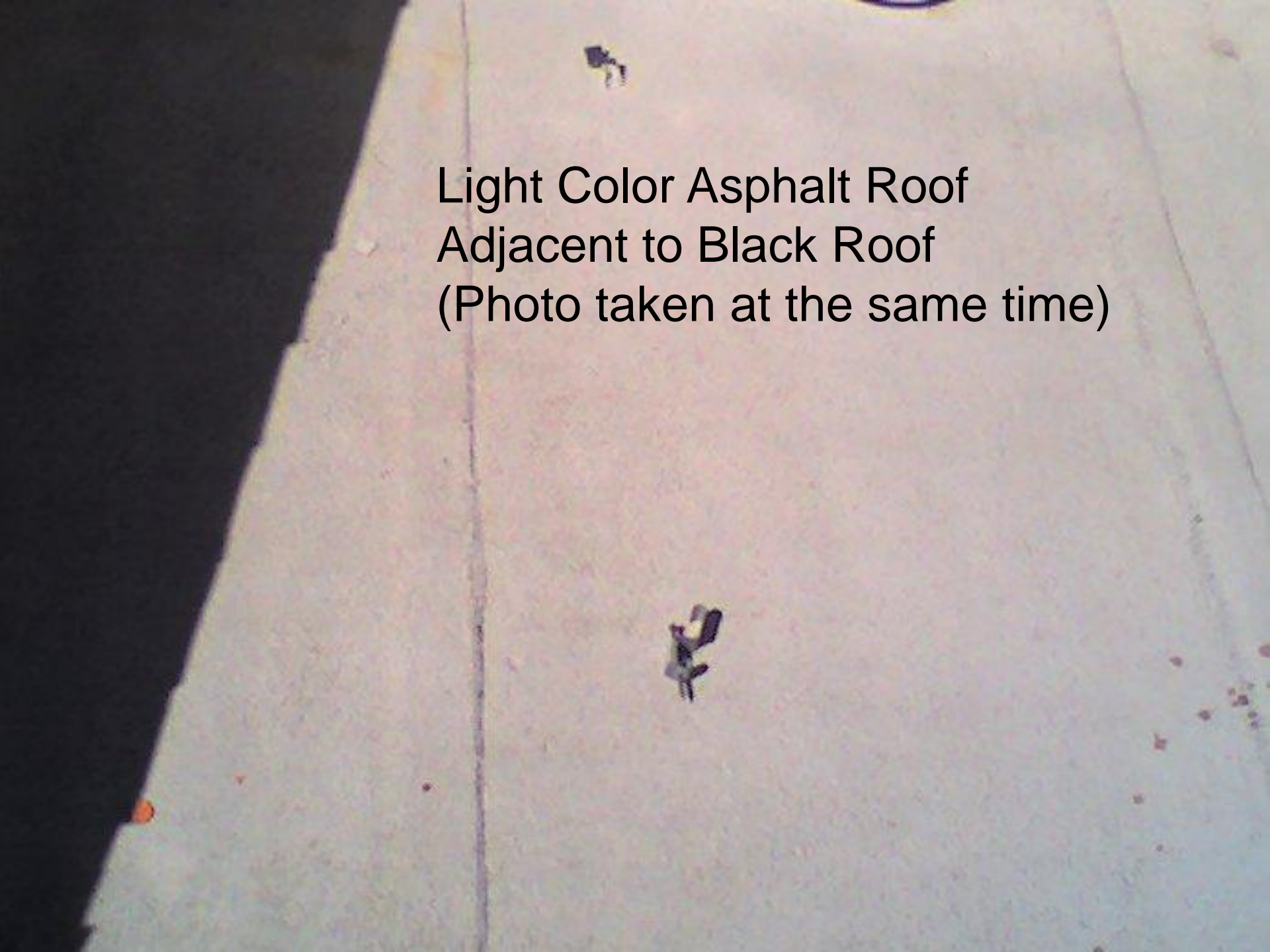


168

90.8

11-04-01  
15:11

 FLIR



Light Color Asphalt Roof  
Adjacent to Black Roof  
(Photo taken at the same time)

Spot **133** °F

$\epsilon$  0.90  
Refl. T 68.1°  
Dist 3.5ft  
FOV 25°  
Rel. H 50%  
Atm. T 78.7°

Light Color Asphalt Roof  
30 degrees Cooler than  
Black Roof!



135

97.3

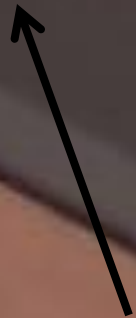
11-04-01  
15:12



White Metal Roof



Note Bronze Trim is much hotter



Spot **114** °F

ε 0.90  
Refl. T 68.1°  
Dist 3.5ft  
FOV 25°  
Rel. H 50%  
Atm. T 78.7°

White Metal Roof  
50 degrees cooler than Black Roof!  
Adjacent to Black Roof  
(Photo taken at the same time)



130

100.0

11-04-01  
15:11



One last street shot; note that the asphalt is 50 degrees hotter than the air temperature, note that the concrete sidewalk is about 30 degrees cooler than the street.

Spot **126** °F

$\epsilon$  0.90  
Refl. T 68.1°  
Dist 3.5ft  
FOV 25°  
Rel. H 50%  
Atm. T 78.7°



137

77.6

11-04-01  
15:14

 **FLIR**